



(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 154853

Roll No.

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B. Tech.

(SEM. VIII) THEORY EXAMINATION, 2014-15
BIOMEDICAL INSTRUMENTATION

Time : 3 Hours]

[Total Marks : 100

Note : Attempt all questions as directed. All questions carry equal marks.

1 Attempt any two of the followings :

- (a) What are noninvasive biomedical tools? Explain the functioning of any noninvasive instrument.
- (b) What are transducers? Discuss the principle behind any transducer used in biomedical instrument.
- (c) What do you understand by bioelectric potential? How does it support in biomedical instrumentation?

- 2** Attempt any two of the followings :
- (a) Discuss the role of biomedical instrumentation to measure cardiovascular parameters.
 - (b) Mention the respiratory parameters of medical significance. How can instrumentation help in monitoring respiratory status? Describe with the help of suitable example.
 - (c) What is colored doppler? How does it help monitoring the flow of blood through vessels?
- 3** Attempt any two of the followings :
- (a) Write a short note on sensory measurement. Describe the principle behind the instrument used in such measurement.
 - (b) What do you understand by behavioral parameters? How does instrumentation help monitoring the behavioral changes effectively? Explain with the help of suitable example.
 - (c) Taking example of any invasive and non-invasive instruments of biomedical measurement, mention the advantages and disadvantages.

- 4 Attempt any two of the followings :
- (a) What are radioactive-tracers? How can they be used in disease diagnostics? Give one example where such tracers are effectively used in diagnostics.
 - (b) What is GM tube? Describe the principle and importance of GM tube.
 - (c) What are the methods to produce X-ray? Describe its role in diagnostics and mention its advantages and disadvantages in biomedical measurements.
- 5 Attempt any two of the followings :
- (a) What are the parameters of assessment of electrical safety? How do these parameters ensure electrical safety of laboratory instruments?
 - (b) Describe as to how computation tools, sensors and networking have assisted biomedical instrumentation to achieve new heights. Support your answer taking at least one example.
 - (c) What are the key points for maintenance of biomedical instruments? How do they influence the accuracy and efficacy of instruments?
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